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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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DISEASES of the NERVOUS SYSTEM

(PUBLISHED MONTHLY)

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EDITORIAL COMMENT

The Neurotic Patient

An item of common experience that needs reiteration every time a neurotic patient walks into the office is this: Treatment of the neuroses does not rest upon the findings of a physical examination, the results of laboratory tests, or the visible and tangible evidences of disease processes that may be appreciated alike by the layman and physician. Mental hospitals are already crowded with patients who have "nothing physically wrong with them," who are "entirely capable of a full day's work," and who, despite their physical soundness, cannot "snap out of it and pull themselves together" but must remain incapacitated, perhaps permanently so, by serious illness unrelated to the healthiness of the body.

So commonplace is this knowledge that sight of it is often lost when the neurotic patient explains his mental disturbances and emotional maladjustments in terms of physical illness. Such terms are used by the patient not because they describe accurately his illness but because they constitute the best language the patient knows to describe his complaints. Nor does their use justify the physician in accepting a patient's complaints at face value. Obligatory in the practice of medicine is the combined task of diagnosis and differential diagnosis. Especially is this true in relation to the psychological illness described by the patient as a physical ailment, since any diagnostic failures mislead the patient still further, reinforce his misconceptions of his disability and intensify the illness by proving the inadequacy and futility of medical help.

Furthermore, differential diagnosis in psychological illness often constitutes a serious threat to successful therapy for the patient, since usually the tendency is to focus all attention upon the possibilities for organic disease. Thus, the patient is given increased opportunities to think of his illness in physical terms, and the very fact that he is psychologically ill makes him the more likely to do so. For example, the patient who complains of a gastric disorder, actually neurotic in character, and who undergoes an extensive systematic study to eliminate any possibility of organic disorder is led to the unhappy understanding that the proper medical approach to his illness is by such laboratory and clinical procedures, and that his ailment is of such obscure physical character that the most searching of tests affords no help.

The purpose of differential diagnosis is not primarily to prove what the condition is not, but rather to assist, as directly as possible, in determining what it really is. Too often the neurotic patient has proved to him by examination, medication, surgery and various other clinical procedures that he has none of the ailments of which he complains. His descriptions of what is wrong have been accepted at face value and made the basis for an extensive misleading and frustrating search.

The essential consideration in differential diagnosis of psychological illness, so often overlooked and disregarded by the physician in his attentiveness to the patient's complaints, is the highly important matter of the patient's emotional attitudes—his attitudes toward himself, his illness, his total situation—neurotic attitudes readily appreciated even by laymen and so much more informative and reliable than the patient's self-diagnosis.

A differential diagnosis based upon a recognition and appreciation of neurotic attitudes leads to a more ready understanding of the patient's actual medical condition and precludes a minor physical ailment from overshadowing a major psychological illness and thus dominating therapy. Indeed, the full recognition of neuroticisms, in whatever relationship seen, increases the opportunities for proper medical judgment and discrimination so vital to the patient's ultimate welfare. Even as the presence of eczema should not preclude proper treatment for acute appendicitis, so should not the existence of actual physical illness preclude treatment of a more important psychological illness.

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The Treatment of Involutional Psychoses With Diethyl Stilbestrol and Estradiol**

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This report concerns itself chiefly with the use of estrogenic substances in the treatment of 45 women suffering from involutional psychoses. All of the patients in this series have been observed for a period of two years.

Fifteen patients received alpha estradiol benzoate (Progynon B) in sesame oil which was given intramuscularly. One ampule of Progynon-B* contains 1 2/3 milligrams of alpha estradiol benzoate which was the single dose we injected each time the drug was administered. This amount is said to be the equivalent of 10,000 Allen-Doisy rat units. One rat unit is said to equal about ten international units by assay. Therefore, one ampule of Progynon-B is equivalent approximately to 100,000 international units. However, it must be remembered that there are varying opinions concerning the exact potency of estrogens expressed in international units and there is a tendency to consider potency in terms of milligrams of the product employed.

In the first week, the patient received four injections (400,000 international units). In the second week three injections (300,000 international units) were given. A maintenance dosage of 200,000 international units weekly was administered for the remainder of the treatment period. Thus the total number of international units given in the first month was 1,100,000.

Thirty patients received Estrobene* (diethyl stilbestrol) a synthetic substance which was administered orally. It is said to be capable of replacing the action of estradiol despite the fact that its structural formula is different from that of natural estrogens. Four milligrams were administered daily for one week. The next week three milligrams were given daily. Following this the patient received two milligrams daily for a period of two weeks or longer. Dodds[1,2,3,4] stated that one milligram of stilbestrol had a potency equivalent to 25,000 international units of estrone. Using this estimate of potency as a basis of computation each individual received 700,000 international units the first week, 525,000 international units the second week and a maintenance dosage of 350,000 international units each week thereafter. Thus, in the first month the patient received about 2,000,000 international units.

On the other hand, Frank, Goldberger and Felshin[5] stated that the potency of one milligram of stilbestrol is far less than that established by Dodds and is equivalent to about 6,600 international units. It is likely that estrogenic potency of diethyl stilbene expressed in international units may lie somewhere between these two figures. If the estrogenic activity as estimated by Frank and his associates are used as a criterion, only 500,000 international units of stilbestrol were administered during the first month. For this reason, and because absorption from the alimentary tract of orally ingested estrogens is not as certain, we administered a greater number of milligrams of stilbestrol than of estradiol.

However, large doses of both substances were used in order to effectively counteract the action of the pituitary. Small doses are

*Progynon-B was supplied through the courtesy of the Schering Corporation. Estrobene was supplied through the courtesy of Ayerst, McKenna and Harrison.

**Read at the Up-State Inter-Hospital Conference, Utica, N. Y., April, 1941.

said to produce an ovarian stimulating effect which is undesirable. Previous investigation[6,7,8,9,10,11,12] has demonstrated that a relatively wide margin of safety exists even when large amounts of the above mentioned preparations are employed.

The length of estrogenic therapy in most cases averaged from six weeks to two months and unless further treatment was indicated the estrogens were gradually withdrawn. In the more severe types when relapses occurred after the therapy was discontinued, it was necessary to re-establish the regime on maintenance doses mentioned above. In some of these cases anterior pituitary like sex hormones, thyroid extract or progesterone were subsequently administered.

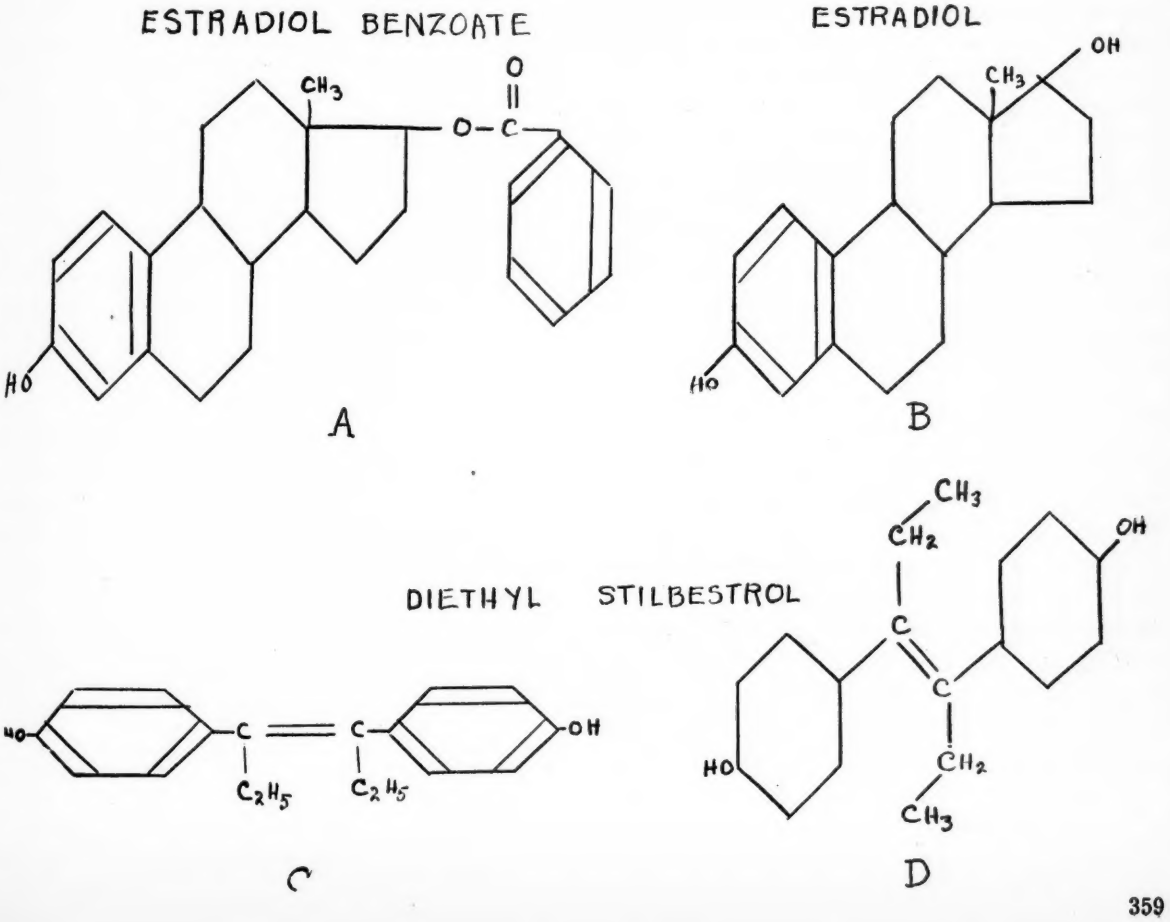
Five cases of dementia praecox and an equal number of patients suffering from manic depressive psychoses or psychoneuroses were treated in a similar manner with Estrobene. In the clinic fifteen cases of the involutional syndrome without psychosis were treated by estrogenic therapy. Ten of these patients received Estrobene and five were given Progynon-B. However, smaller doses were employed but they were occasionally administered over a longer period of time. Four milligrams of diethyl stilbestrol or 100,000 international units of alpha estradiol benzoate was the average amount given weekly.

Chemistry

The term estrogen does not refer to a specific substance[13] but rather to three groups of compounds which possess biologic activity similar to that of the active principle produced by the Graafian follicles. They may be classified as follows: (1) hormones of animal origin obtained from the ovary, placenta or urine of pregnancy; (2) substances which are identical in structure and action with the natural hormone but are synthetically prepared; (3) certain synthetic compounds which possess similar biologic activity but whose chemical structure differs from that of the natural hormone.

The active principle of the Progynon-B (alpha estradiol benzoate) is alpha estradiol (alpha dihydroxy estrin). This substance

FIGURE I



which is synthesized in pure crystalline form is apparently identical with the estrogen obtained from the follicular fluid of the ovaries. The estradiol used in this study therefore belongs to the second group described above. The structural formula of alpha estradiol benzoate and estradiol are represented in Figure 1.

Natural or synthetic estradiol is said to possess four to eight times the rat unit activity of estrone ($C_{18}H_{22}O_2$) weight for weight. The formula of estrone which is also known as ketohydroxy-estrin or theelin, an excretion form of follicular hormone obtained from the urine of pregnancy is shown in Figure 3. Estradiol is forty to eighty times as potent as estriol (Theelin) which is a urinary hormone with a somewhat prolonged action and may also be administered orally as well as intramuscularly. All these estrogens are cyclopentenophenanthrene derivatives.[13]

Progynon-B because it is a benzoic acid ester of alpha estradiol has a much more prolonged action than alpha estradiol. It, therefore, is useful in this type of investigation since it possesses high potency and an action of long duration.

The natural occurring estradiol has been isolated from the ovary[14] and has been found in pregnancy urine.[15] It is believed that estradiol is the ovarian estrogenic hormone and the substances obtained from pregnancy urine and placenta are secondary products.

Diethyl stilbestrol (Estrobene) is a synthetic substance[1,2,3,4] which belongs to the third group of estrogenic substances mentioned above. It is described as 4,4 dihydroxy alpha-beta-diethyl stilbene (Figure 1-C). Superficially, it differs markedly from the structural configuration of the natural estrogen derivatives although its molecular formula ($C_{18}H_{20}O_2$) is similar to that of estrone. It can be seen, however, that while diethyl stilbestrol does not possess a cyclopentenophenanthrene nucleus, the structure is not so far removed from these derivatives when the formula is written as in Figure 1-D.

With the exception of diethyl stilbestrol the estrogens and androgens employed in the treatment of involutional states possess a basic structure which is similar to that of the sterols or cyclopentenophenanthrene derivatives. In Figure 2 are shown the sterol and the estrin nucleus.

FIGURE III

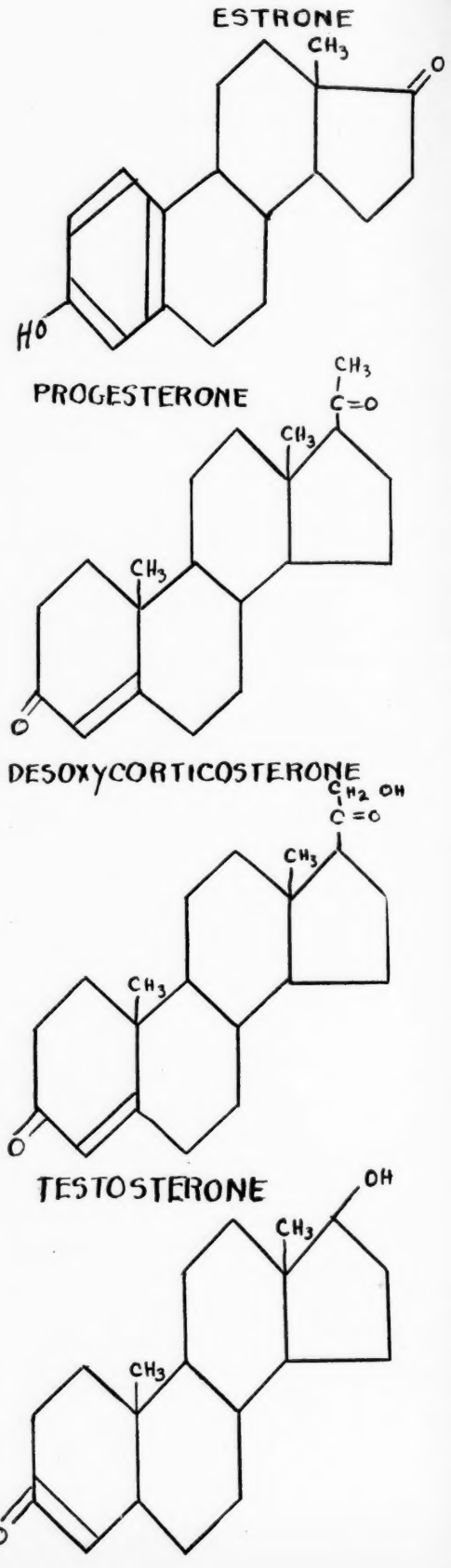
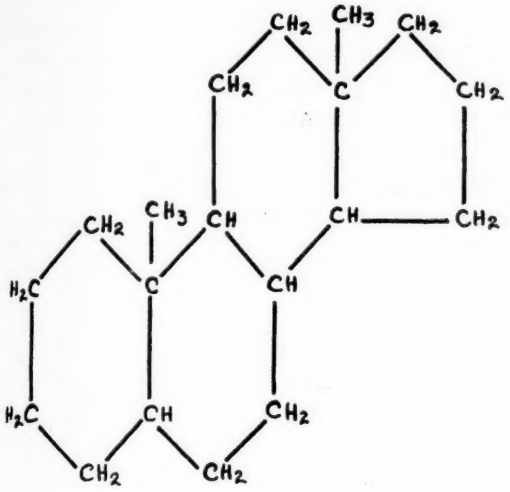
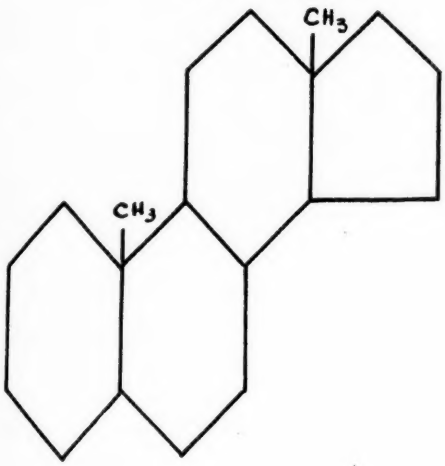


FIGURE II

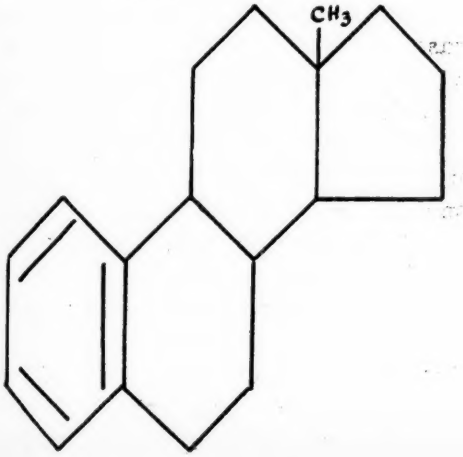
GENERAL STEROL FORMULA



STEROL NUCLEUS



OESTRIN NUCLEUS



In their basic chemical structure, therefore, the estrogens resemble other derivatives of the general sterol nucleus such as cholesterol, ergosterol and Vitamin D, the bile acids, the digitalis group and methyl-cholanthrene, a carcinogenic substance.

There is further a close inter-relationship existing between estradiol, estrone and estriol of the estrin group. In addition, the estrogens are very similar in configuration to the androgens (testosterone and androesterone), the corpus luteum hormone (progesterone) and to the adrenal cortical hormones (desoxycorticosterone, dehydrocorticosterone and corticosterone). The close structural relationship between the testosterone, progesterone and desoxycorticosterone and their similarity to estrone is illustrated in Figure 3.

It will be noted that although these substances are all built around the characteristic sterol nucleus and are similar in configuration, the physiologic and pharmacologic effects may be divergent. In addition, stilbesterol which has a somewhat different formula produces a result almost identical with that of the estrogens. It has been stated also that there is a physiological relationship between the action of Vitamin E (alpha tocopherol) which has a chromane structure and the function of the reproductive apparatus. The absence of this vitamin is said to result in sterility in the male and abortion in the female. It is also used in the treatment of neurologic lesions such as amyotrophic lateral sclerosis.

Untoward Effects

Despite the large margin of safety ascribed to the estrogens, the production of toxic effects cannot be disregarded.[16,17] The estrogenic preparations used in this study were of high potency and concentration and were employed over a relatively long period of time so that the patients had to be carefully observed for the occurrence of toxic sequalae. Some of these manifestations were exaggerations of the normal action of these substances and others were distinct from the usual physiologic effects of the drugs. In large concentrations estrogens are said to inhibit the normal function of the ovaries and retard follicular development but they also suppress pituitary activity and inhibit the production of gonadotropic hormone. They may further antagonize the effect of the growth and thy-

rotropic hormones of the pituitary. They may produce some effects on the thyroid and adrenocortical hormone. They are said to have a marked effect on calcium metabolism. Natural or synthetic estrogens are said to possess carcinogenic properties.[18]

Despite the massive doses administered the occurrence of toxic physiologic effects was not too frequent. With Progynon-B relatively few untoward reactions were noted. Three of the fifteen individuals who received this estrogen showed mild toxic reactions. These included excessive bleeding, feeling of fullness in the region of the ovaries and mild abdominal cramps. In no instance, however, was the treatment discontinued.

Of the thirty patients receiving stilbestrol toxic physiologic effects were more severe and were noted in sixteen. In four of these the manifestations were sufficiently severe so that treatment had to be discontinued. After a rest period smaller doses were subsequently administered. The untoward effects noted included nausea, vomiting, headache, anorexia, severe abdominal cramps, excessive bleeding, vertigo and weakness. Two patients complained of pruritis vaginae and in two others there was a feeling of fullness in the vulva. These occurred most frequently early in the therapy generally after the third or fourth day. Some of the patients developed tolerance to the drug but in two cases continuation of the therapy even with smaller doses was not possible because of the persistence and aggravation of the untoward effects.

No uterine carcinomata were found to occur in our series. The establishment of uterine bleeding was noted in thirty-eight cases.

There was little difference in the type of untoward psychologic effects noted with either estradiol or stilbestrol. These were observed most frequently in the severe types of involutional psychoses. Here, restlessness, increased agitation and excessive masturbation were noted. Homosexual advances were made by four patients. Increase in erotic tension was noted in thirty of the cases treated. In six cases this increase in eroticism was very annoying to the patient. Three patients attempted suicide during the therapy.

Results

The results are represented in the accompanying table. The reaction to estrogenic therapy is classified according to the types of involutional psychosis and the degree of improvement. Of the forty-five cases treated, twenty-eight or 62 per cent were noted as beneficially affected. In a control series of one hundred and seventy-six which we discussed in a previous communication,[19] seventy-seven or only 43 per cent were reported as improved. In the psychotic group, the most favorable results were obtained in the mild or simple type. The severe type did not respond well to estrogenic therapy. In the moderate or mixed group, some degree of improvement was noted in a large percentage of the cases.

THERAPY IN INVOLUTIONAL PSYCHOSES

Estradiol (Progynon-B)

Types	No. of Cases Treated	Cases Much Improved	Cases Improved	Cases Unimproved
Mild	4	4	0	0
Moderate	6	2	3	1
Severe	5	0	1	4
	15	6	4	5

Diethyl Stilbestrol

Types	No. of Cases Treated	Cases Much Improved	Cases Improved	Cases Unimproved
Mild	8	7	1	0
Moderate	9	3	4	2
Severe	13	0	3	10
	30	10	8	12

Comparative Results

	No. of Cases	No. Improved	Per Cent
Progynon-B Treated Cases	15	10	67
Estrobene Treated Cases	30	18	60
	No. of Cases	**No. Improved**	**Per Cent**
Estrogen Treated Cases	45	28	62
Control Series	176	77	43

Of five cases of dementia praecox occurring in the involutional period none were appreciably benefited by the therapy. One case, however, did show improvement in the physiologic sphere. Five cases of manic depressive psychoses in the same age period were treated and improvement was noted in only one case. The five chronic psychoneurotic patients were not affected by the treatment.

In all cases of the involutional syndrome without psychosis relief was obtained with respect to the physiologic and neurotic symp-

toms exhibited. This type appears to respond best to estrogenic therapy.

In those cases which responded the effects following oral administration of Estrobene were very similar to those observed following the injection of Progynon-B. The patients who were not improved by Estrobene were usually not affected by Progynon-B. The percentage of cases improved following the administration of Estrobene was only slightly less than the percentage of cases favorably influenced by estradiol.

Discussion

I. *Classification of Involutional States.*

While poor integration of their pre-psychotic personality may more or less influence the occurrence of involutional psychoses this factor in itself seemed to have less bearing on the course and prognosis. Therefore, in a previous communication Brew and Davidoff[19] attempted to subdivide the various types of involutional states encountered not only according to the severity of presenting symptoms at a given time in the psychosis or the personality factors but on a prognostic basis and from a broader viewpoint. Their classification may be summarized as follows:

1) The involutional syndrome without psychosis.

In this group are found individuals who manifest in exaggerated, but temporary form, physiologic and psychologic symptoms usually present to a lesser degree in the normal menopause. Menstrual disturbances, hot flashes, transitory crying spells, feelings of discomfort, restlessness, fatigability and somatic complaints are observed.[8,9,10]

2) The involutional psychoses.

(a) The simple or mild type. In this subdivision more than transitory depressed[11] and agitated states are encountered which are apparently caused by or superimposed on the climacterium and one of its somatic components—estrogenic deficiency. This type may be considered as a psychosis due mainly to endocrine dyscrasia (estrogenic deficiency). In this sub-group a largely quantitative difference usually exists between the non-psychotic and psychotic patient. The psychogenic or personality factors do not appear as important as in the other patients with involutional psychoses.

(b) The moderate type. In this subdivision the symptoms appear to be precipitated to a large extent by the climacterium but other factors are present. In many of these cases we are not dealing with one component but with a constellation of factors of psychogenic origin including personality development and of organic origin including somatic, autonomic and other endocrine and gonadal influences which may be associated with the menopause or independent of it. Because of these several factors involved it may be difficult to decide which element predominates in the production of symptoms. However, these patients respond moderately well to therapy although their improvement tends to be more temporary and of lesser degree than that observed in the mild type (a). In this group, estrogenic therapy is of value as an adjunct to other procedures, particularly since the reaction is often reversible. Persons with depressive or cyclothymic tendencies may be found in this subdivision.

Many of the symptoms found in these patients may be similar to those observed in the mild type but are generally more severe or protracted. Somatic complaints which seem out of proportion to the physical findings, prolonged hypochondriasis, ideas of unworthiness, delusions of sin and an attitude of hopelessness and suicidal tendencies may exist; and a continuous agitated anxious indecisive state may be present for a considerable space of time. However, some of the manifestations are similar to those observed in the severe type and the pre-psychotic personality factors are observed to influence the course of the psychosis to some extent.

(c) The severe type. In this subdivision the involutional symptoms color and are superimposed upon pre-existing severe personality deviations or abnormal mental states. The climacterium per se is relatively unimportant in comparison to other factors involved. A largely qualitative difference exists between this type and the involutional syndrome without psychosis. In this group the involutional state is the manifestation of an irreversible ontogenic catabolic process. These patients respond poorly to estrogenic therapy or other forms of treatment.

This group includes among others the individuals described by Palmer[20,21] as possessing rigid or poorly integrated personalities. They are frequently, in our opinion, predomi-

nantly schizoid but not always schizophrenics although many may be late appearing or latent cases of dementia praecox.[22] It is often difficult to decide whether these should be grouped as involutional psychoses or schizophrenics. The paranoid types for the most part appear to be more satisfactorily classified as cases of dementia praecox.

Others found in this subdivision are those of the manic depressive mixed or severely depressed type; those with previously prolonged somatic or endocrine disturbance including pelvic disease; and those in whom the involutional symptoms are merely early signs of organic brain diseases, such as arteriosclerosis or pre-senile psychoses. In addition, it is apparent that estrogenic dyscrasia may exist concomitantly with well established and long-standing cases of functional mental illness occurring during the involutional period and prior or subsequent to it.

These patients frequently manifest marked feelings of unreality and express ideas divorced from reality. Their emotions are more rigid; their actions more stereotyped; their attitude more hopeless and preoccupied. Their behavior is more peculiar and atypical than that usually associated with our agitated depressions. Bizarre delusions and hallucinations are more in evidence. Repeated suicidal attempts may be noted. Marked tensions, indecisive, compulsive behavior and a tendency to regression is present. However, many of these symptoms except the most atypical may be observed in the moderate forms and for a time in the mild type so that severity of symptoms alone cannot be used as a criterion. Another point of view concerning this psychosis has been presented by Palmer and others.[20,23]

II. *Evaluation of the Results Obtained.*

The cases which we classified as simple or mild involutional psychoses responded almost as well to estrogenic therapy as those individuals who manifested menopausal symptoms but were considered as without psychosis. In the psychotic group, the psychologic manifestations prior to treatment were more disturbing and prolonged, the early response to the therapy was not as favorable and larger doses were required. However, a close relationship seems to exist between these two types since they both appear to be due to estrogenic deficiency.

Therefore, within certain limits it might appear that the therapeutic test with the estrogens may have some diagnostic value. It may differentiate those mental states which are dependent on estrogenic deprivation itself from those where the climacterium is one of many factors in the etiology of the psychosis. It is realized that in the present state of our knowledge no exact differentiation can be made between the various types observed. The therapeutic test is useful, hohwever, in indicating whether or not the hormonal deficiency is a leading etiologic factor in producing the mental state. If the patients improve when estrogens are administered, a psychosis with an estrogenic deficiency may be said to exist. In other cases it may be assumed that other endocrine factors may be present as well as personality and catabolic forces dependent on or independent of the menopause.

Fair results were noted in many of the moderate or mixed types but the degree of improvement was neither as marked nor as rapid and recurrence of mental symptoms was noted in some of the cases. In these instances it was necessary to supplement the therapy with other forms of treatment including non-estrogenic endocrines, continuous narcosis, hydrotherapy and psychotherapeutic procedures. The use of progesterone and adrenal cortical hormones has also been considered in some of these cases.

The least favorable results were obtained in the severe type. This group of cases did not respond well to any of the therapeutic procedures we employed although they are said to respond well to non-specific treatment with metrazol and electric shock.

Since there are different opinions concerning the nature of the involutional psychoses, there are discrepancies in the reports regarding the therapy.[11,20,21,22,23,24,25,26] Severinghaus,[24] Werner[26] and others treated only the cases of the milder group since they apparently believed that many of the patients of the severe type were not suffering from true involutional psychoses but were manifesting symptoms of other psychoses occurring in the involutional period. Therefore, they obtained better results with estrogenic therapy than we did.

On the other hand, Palmer[21] and others reported less improvement for their selected

group than we did because they included in their concept of involutional melancholia only those cases of the severe type who possessed a definite serious personality difficulty prior to the onset of the psychosis. Accordingly, the improvement resulting from estrogenic therapy in the mild type may also be considered in part a non-specific physiologic-pharmacologic phenomenon which may in some way effect the endocrine cycle. This may be true since diethyl stilbestrol which possesses a different chemical structure produces effects similar to those of estradiol and other related natural estrogens. Response to the therapy may merely include that the pathologic process, psychologic or endocrine, in the milder or moderate cases is not irreversible.

Summary

1) Massive doses of estrogen were employed in 45 cases with involutional psychosis.

2) Twenty-eight or 62 per cent were improved while in a control series of 176 only 43 per cent were improved.

3) Diethyl stilbestrol administered orally was about as effective as alpha estradiol injected intramuscularly but toxic effects were more frequently encountered.

4) The milder types of involutional psychosis responded well.

5) Cases of moderate severity reacted favorably, particularly when adjuvant therapy was used but relapses occurred and the degree of improvement was not as marked.

6) The psychotic manifestations in the severe cases were not materially affected.

7) Five patients with dementia praecox and five with manic depressive psychosis responded poorly.

8) The symptoms occurring in the fifteen cases of the involutional syndrome without psychosis were relieved by estrogenic therapy.

9) The therapeutic test with estrogenic substance in involutional psychoses seems to possess some diagnostic value.

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A Report on the Use of Phenobarbital and Benzedrine Sulfate in the Treatment of Epilepsy

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Cohen and Myerson[1,2] have reported favorably on the use of benzedrine sulfate to counteract the toxic effects of large doses of phenobarbital in epilepsy. Since Stone et al[3] were unable to confirm these findings, it seemed interesting to report the results of a study made at the Ohio Hospital for Epileptics.

The patients chosen for the study had had continuous hospital records showing at least one grand mal seizure a month for two years. Most of these were given increasing doses of phenobarbital at the discretion of the physician in charge until signs of overdosage appeared. Phenobarbital was not increased in ten patients who had undesirable reactions to the original dose. Benzedrine sulfate was then given in sufficient amounts to counteract the drowsiness in most cases. The combined medication was continued until the end of the twenty-sixth week. Patients who did not continue for the entire time were not included. Several patients were started on benzedrine sulfate, but were dropped from the experiment because their reaction to the drug was not satisfactory. Patients having only idiot intelligence reacted usually by becoming more noisy and more easily disturbed. Only one patient was dropped because of physical indications. This patient complained of severe vertigo. Most patients showed a slight initial rise in blood pressure along with an increased pulse rate. But this increase invariably leveled off and in no patient was it sufficient to cause alarm. The group so constituted numbered forty-six, sixteen males and thirty females.

During this period the doses of benzedrine sulfate and phenobarbital were not necessarily continued unchanged. For various reasons it was deemed advisable to alter the ratio of the two drugs. The doses as given in Tables I and II merely indicate the average dose that patients received. Considerable variation was made in the dose of benzedrine sulfate on such patients as seemed to receive an especially beneficial effect from its administration. For instance, in case No. 3766, the ratio of benzedrine sulfate and phenobarbital was changed on January 7, February 10, March 10, and on April 10. The first dose was nine grains of phenobarbital and five mg. of benzedrine sulfate. With the second change, the phenobarbital remained the same, but the benzedrine was increased to ten mg. At this time the patient still showed effects of overdosage of phenobarbital and had shown no evidence of toxic effect of benzedrine sulfate. Consequently, on March 10 the phenobarbital was reduced to six grains and the benzedrine increased to thirty mg. From here on until the end of the experiment the patient was greatly improved, but showed her maximum improvement after April 10, when the dose of benzedrine sulfate was increased still further to forty mg. This patient's record is not included in the charts accompanying this paper.

Results

Table I shows the records of the cases in which the dose of phenobarbital was increased. In twenty of these (Nos. 1, 5, 6, 8-13, 17, 18, 20, 21, 22, 24, 29, 32, 34-36) the number of grand mal seizures expected in six months, as well as the number occurring in the six months prior to the experiment, was decreased to ten per cent or more during the six months of the study. The reduction averaged fifty-six per cent of the number of expected attacks and fifty-eight per cent of the number occurring in the six-months' period preceding the study. These twenty cases show more than ten per cent decrease in number of attacks during study, as compared with number of attacks in similar period prior to study.

TABLE I

	Age	Sex	No. attacks expected in 6 months	No. attacks in 6 months prior to study	No. attacks in 6 months of study	Phenobarbital (grs.) Before	Phenobarbital (grs.) During	Benzedrine Sulfate (mg.)
1.*	16	M	88	52	22	4.5	7.5	5
‡ 2.	45	M	51	57	88	7.5	9	10
3.	41	F	50	49	50	3	7.5	5
4.	26	M	47	43	49	3	9	5
5.*	39	F	46	42	24	3	4.5	5
6.*	22	F	45	65	18	3	6	5
7.	46	F	44	30	34	3	4	13
8.*	46	M	44	64	12	4.5	6	10
9.*	16	F	43	43	19	3	6	5
10.*	24	M	42	52	35	6	9	5
11.*	51	F	40	61	43	1.5	4.5	5
12.*	28	F	38	36	21	3	4.5	5
13.*	49	F	34	44	0	3	7.5	5
14.	17	M	33	27	28	4.5	9	5
15.	63	F	32	21	26	1.5	3	2.5
16.	27	M	31	34	31	3	9	5
17.*	55	F	30	39	15	1.5	4.5	5
18.*	33	F	28	17	9	3	9	10
19.	36	F	28	78	55	1.5	4.5	5
20.*	52	F	24	25	12	3	6	31.3
21.*	53	F	23	37	17	3	6	11.5
22.*	28	F	23	25	16	1.5	4.5	5
23.	26	F	22	21	23	3	4.5	5
24.*	32	M	21	18	11	4.5	7.5	10
25.	38	F	17	24	22	0	4.5	5
‡26.	53	M	16	16	20	3	9	5
27.	27	F	15	19	17	1.5	4.5	2.5
28.	29	F	14	14	14	3	4.5	5
29.*	54	F	14	12	10	3	3.5	10
30.	48	M	14	11	11	6	7.5	10
31.	46	M	13	12	11	6	7.5	10
32.*	37	M	13	19	5	4.5	6	5
‡33.	33	F	12	16	19	3	6	5
34.*	44	F	11	11	6	3	7	5
35.*	76	M	8	2	0	3	6	10
36.*	22	M	6	5	2	7.5	9	5
Average	38		29	32	22	3.4	6.3	7.1
*Average for 20 patients listed above	39		31.4	34	15	3.45	6.23	7.9

‡Cases showing increased number of attacks during study.

In three cases (Nos. 2, 26, and 33) the number of attacks was increased. In the remaining thirteen cases there was no demonstrable or consistent effect.

There was a thirty-four per cent decrease in the number of attacks during the period prior to the study, all thirty-six cases being included in this average.

Table II is composed of the cases in which the dose of phenobarbital was not increased. There was a similar decrease in the number of seizures in six of these (Nos. 39, 40, 42, 43, 44, 46), an increase in two (Nos. 38, 41), and no demonstrable change in the other two (Nos. 37, 45).

There is a fifteen per cent decrease in the number of attacks during the period of study as compared with the number of attacks in a similar period prior to the study, all ten cases being included in this average.

Combining the two groups and comparing the general average of attacks during the period of study with the general average of attacks during a similar period prior to study, a decrease of thirty-one per cent in the number of attacks during the period of study is shown.

Benzedrine sulfate, in doses of less than 30 mg. a day, had no appreciable effect on blood pressure or pulse rate. There were no serious side-reactions and no insomnia, although some patients complained of being sleepy, indicating that the dose of benzedrine might sometimes have been increased to advantage. On the other hand, drowsiness was relieved in many cases. It was also frequently observed that the mental depression and apathy induced by phenobarbital were counteracted by benzedrine sulfate. This mental stimulation greatly facilitated the care and management of the patients.

The patient, No. 3766, selected as a specific example and previously referred to, was admitted to the hospital in March, 1931. At that time she showed an I. Q. of 35, but gradually went through an apparent deterioration and for several years prior to 1940, the patient was unclean, unable to dress or feed herself, and took no interest in her surroundings.[5,7] At the height of her improvement, following the use of benzedrine sulfate in conjunction with the barbiturates, she was not only having approximately fifty per cent less attacks, but was doing all that a patient with an I. Q. of 35 could be expected to do. She was cleanly dressed and fed herself, helped with some of the ward work, and at times would even assist another patient who was having an attack. The patient continued in this condition through July and August. At the end of August her phenobarbital was reduced to 4.5 grains daily and the benzedrine discontinued. There was a noticeable, although not marked, increase in the patient's apathy and she had a greater tendency to segregate herself and disregard her environment.

Another example of the effects of the withdrawal of benzedrine sulfate, is patient No. 957. His attacks were reduced roughly by seventy-five per cent during the period of the experiment, but there was little change in his general attitude toward his surround-

TABLE II

	Age	*Sex*	*No. attacks expected in 6 months*	*No. attacks in 6 months prior to study*	*No. attacks in 6 months of study*	*Phenobarbital (grs.)* *Before*	*During*	*Benzedrine Sulfate (mg.)*
37	38	F	86	87	86	3	3	2.5
38	26	F	67	61	76	1.5	1.5	2.5
39	65	F	47	51	42	4.5	3	2.5
40	44	F	42	38	33	1.5	1.5	2.5
41	48	F	39	40	66	6	6	2.5
42	27	F	39	49	23	3	3	5
43	28	F	33	31	1	3	3	2.5
44	49	M	22	20	0	7.5	7.5	10
45	49	F	18	18	18	3	1.5	2.5
46	52	M	12	15	0	6	6	20
Average	43		41	41	35	3.9	3.6	5.3

ings. In fact, he was well pleased when the benzedrine was discontinued September 1. During the following month, however, he had seven attacks, five of which occurred in one week, took less interest in his environment, and seemed more irritable than usual.

Comment

It might be assumed that the appreciable reduction in the incidence of epileptic seizures in this group of patients is due primarily to the increased dose of phenobarbital that is possible when supplemented by benzedrine sulfate. However, there was no correlation between the amount of the increase in dose and the effect observed. Table I shows that the average dose of phenobarbital was somewhat more than doubled in the thirteen cases where there was little or no demonstrable effect, and somewhat less than doubled in the twenty cases where there was appreciable decrease in the number of attacks. It must be concluded that certain patients derived benefit from the added amount of phenobarbital, whereas others were already receiving the optimal dose before the increase.

The chief beneficial effect of benzedrine sulfate was to alleviate the depression and drowsiness due to large doses of phenobarbital. As Myerson and his collaborators[1,2] point out, the analeptic action of this drug does not apply to the convulsive centers, for there was no evidence that benzedrine sulfate counteracted any of the desired effects of the sedative. In our cases, on the contrary, there was definite reduction in the incidence of seizures in six of the ten cases in which benzedrine was added without increasing the amount of phenobarbital. It must be kept in mind, however, that this last group of patients was receiving sufficient barbiturates to show overdosage symptoms and that it was for this reason that the phenobarbital was not increased at the time that benzedrine sulfate was administered.

We feel that further study would possibly show that there was more than just a counteraction of the depressive effect of the barbiturate; that the stimulation with its accompanying tendency to euphoria, may so change a patient's mental equilibrium, that his convulsive threshold may become increased.[6]

In conjunction with this thought the following deductions may be apropos. The phenomena of epilepsy is made up of various components, the increase or decrease of any or all will result in a changed balance of the equation representing convulsive equilibrium and thus, epileptic attacks will increase or decrease according to the variations of the component parts.

To be more specific, one of the component parts of epilepsy is, perhaps, an individual's inherent convulsive threshold.[5,7] Every individual, whether epileptic or non-epileptic, has a convulsive threshold. Normal individuals possess a threshold so high that convulsive seizures do not occur except as the result of exceedingly strong stimulation; as for instance, convulsions induced by administration of sufficiently large doses of metrazol. The range of the convulsive threshold varies considerably. High or low convulsive thresholds may be determined by the quality of one's plasmic inheritance. In these cases, inheritance of abnormally low convulsive thresholds seem to be a recessive characteristic. A normal convulsive threshold may be lowered by the repeated use of the same combinations of nerve tracts in the cerebrum.[10] Thus a normal individual could gradually develop what could perhaps be called a conditioned reflex, through finding out accidentally that some desired end can be achieved by having convulsions. Habit and conditioned reflex, in this respect, would be closely related.

A second component of epilepsy would be, perhaps, cerebral stimulation.[4] For convenience, we can divide this into three classes: (1) Toxemia, either exogenous or endogenous; (2) mechanical stimulation such as produced in skull fracture, brain tumors, and cerebral hemorrhages; (3) psychic stimuli such as fear, frustration, or compulsion as found in hysterical fugues and related neuroses.

The third component of epilepsy is perhaps the convulsion.[7] Convulsions may result from low convulsive threshold; or they may be produced in an individual by excessive stimulation. This may be any of the three types just mentioned.

The psychic factor would tend to produce and utilize convulsions as an escape mechanism, enabling one to avoid or escape, what is to him, an intolerable situation.[4,5,9] Endogenous toxemia may act as a stimulant upon the convulsive tendency of the individual as

can certain exogenous drugs, such as strychnia, metrazol, etc. Mechanical irritations of the central nervous system can likewise increase a tendency to convulsiveness by pressure on the cells of the central nervous system.[7]

In considering the effect of drugs, there are certain drugs that depress the central nervous system from the psychic as well as the motor aspect; i.e., bromides and barbiturates. Other drugs such as alcohol may have a tendency to lower the convulsive threshold merely by chemical irritation.[8] Or perhaps there is a psychic element in the action. As inhibitions are gradually lessened, and an individual no longer hesitates to utilize this method of escape from his fears, frustrations, and unrevealed compulsions, he seeks to accomplish this end through convulsion and its attendant loss of consciousness.

Dilantin sodium (sodium diphenyl hydantoinate) seems to decrease the irritability of the motor cells of the central nervous system and has little, if any, depressing effect on the psychic activity of the brain.[2] In fact, while depressing the motor function it may act as a stimulant in the purely psychic realm of cerebral activity. Our experience with this drug does not lead us to believe that any psychic stimulation that may result from its administration is of such nature as to produce an euphoric state of mind.

On the other side are such psychically analeptic drugs as benzedrine sulfate.[1,2] Through the stimulation of this drug and the creation of the accompanying euphoria, the psychic elements that heretofore have tended to produce convulsions are gradually diminished and a change of balance in our dynamic equation of epilepsy has possibly been produced.

It was with this thought in mind that it was previously stated that with more study, the value of benzedrine sulfate in the treatment of epilepsy rests not alone upon its counteraction of the depressant effect of barbiturates, but may depend, to some degree, upon the production of an euphoria by its psychic stimulation.

Summary

Benzedrine sulfate was given to a group of forty-six epileptics to counteract the drowsiness and depression due to large doses of phenobarbital. It was found that the stimulation of the added medication made it possible, in most cases, to give the optimal sedation without undesirable effects, and the consequent reduction of attacks during the period of study was thirty-one percent as compared with a similar period prior to the administration of benzedrine sulfate.

Note—The averages given in this paper are arithmetical. However, the actual mean number of attacks in six months prior to the study and in six months during the study, have been computed. There was a difference of 9.1 attacks—between the mean number of attacks during the study; i.e., the mean number of attacks during the study was 9.1 attacks less during the study in which benzedrine sulfate was administered. To test the reliability of this difference, the Critical Ratio value was calculated, between the difference of the two means. A value of 10.6 was obtained. Since this value is appreciably greater in magnitude than the conventional magnitude of three,* this difference existing between the two means is a reliable one and non-fortuitous.

*A Critical Ratio value of three indicates that in ninety-nine of one hundred chances, the difference existing between two means is a reliable one and not due to chance factors.

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Adaptation of the Total Push Treatment Principle to the State Hospital at Large*

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There appears to be an ever-increasing appreciation by mental hospitals of the need and desirability for varied activities designed to stimulate and interest the mentally ill, and to more closely approximate the conditions found in the community. This is particularly so in the case of large state hospitals with many patients and few employees. As a consequence of this unfavorable patient-personnel ratio activities other than routine care and management have necessarily had to be limited to small groups. There has also been a tendency to feel that facilities within the hospital are not adequate for large scale activities inclusive of the whole patient population. Aside from specific therapies, the attempt to stimulate patients has generally consisted of occupational therapy, industrial therapy, movies, dances, etc.

We would offer for consideration, therefore, a program which is essentially an adaptation of the principle of total push treatment of schizophrenia devised by A. Myerson et al[1] for use in practically the entire hospital regardless of diagnoses and physical or mental states. For purposes of clearer understanding, Myerson has described schizophrenia as a state of retirement from active contact with the environment which is accentuated and augmented by the monotonous routine of hospital life, referred to as a hospital vacuum in which there is usually neither praise nor blame and no real incentive to combat this retirement. By bombarding limited but unselected groups of advanced schizophrenics with a constant variety of individual stimuli and therapies with a purpose of producing renewed incentives, he has demonstrated that allegedly progressive irreversible reactions are more apparent than real. The patient gradually assumes a new interest in life and appears better physically and mentally. In other words, the patient is subjected to a total push toward reality, in contradistinction to the partial impact of isolated therapies. Although no cure is claimed, it is noted as may be expected that the greatest and most rapid improvement occurs in those who have been ill the shortest period.

We have felt that a large proportion of patients in a state mental hospital might benefit from such procedures if a solution might be found to overcome the natural difficulties of reaching large numbers with limited personnel and the inertia of customary and archaic ward routines.

It has been our experience that a general program can be organized to include most of the active ambulatory population, with beneficial results, and at no great additional expense to the hospital. This last item is an important one where budgetary problems exist.

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At the Metropolitan State Hospital, which is still in the process of building and organization, we have been faced with the problem of a large chronically ill population with a high percentage of schizophrenics. Our first attempt to re-activate patients consisted of placing those who are untidy on a daily routine of prescribed activity. Several times during the day the patients were marched up and down the ward in an orderly and brisk fashion. Weather permitting, they were taken out of doors to engage in simple occupations such as cleaning ground of stones. The attendants in charge of the group were instructed to urge the patients to activity. Although no startling effects were expected, nevertheless there was a decrease in untidiness noted, and in some cases sufficient improvement to warrant change of the patient to better wards and to increased privileges.

Sometime later, a special program of physical activity was devised for a small group of patients to test certain research investigations. The beneficial effects noted[2] led to an elaboration to include the large majority of patients. Facilities were made available for an intra-hospital radio broadcasting system. The hospital radio system as originally installed operated from a central receiving unit located in the usher's office, with loudspeakers on each ward. By installing microphones and accessory equipment, arrangements were made so that programs could be initiated in the recreation hall and transmitted to all the wards. The physical exercises are broadcast by the instructor in physical education each morning. A musical theme is interwoven into the program, with the collaboration of the director of music. On each ward, at the given time, the attendants lead the patients in the exercises as broadcast. Patients who show aptitude are trained to act as assistants as well as leaders of groups.

Classes in bowling are organized and interward competition is encouraged, as well as matches with employees. A game room has been created, so that the less strenuous forms of entertainment are available for those not able to enter into competitive games. Under the direction of the physical instructor, large numbers of patients play badminton, soccer, baseball, and basketball. More recently softball teams have been developed and interward competition has been encouraged.

The large central courtyard is made available to all patients in suitable weather. Here they stroll about, play ball, and are otherwise urged to activity. A punching bag has been erected, and forms a useful outlet for the more aggressive patients.

In this courtyard a large concrete floor has been constructed. It is used for rollerskating and in suitable weather for outdoor dances. A sidewalk cafe,[3] constructed in rustic style, adjacent to the canteen, is used by patients and relatives for outdoor lunches. Vari-colored umbrella tables on the adjacent lawn are similarly used.

The hospital radio system has been an extremely valuable instrument in increasing the scope of interests and activities available to the patients. Musical programs can be readily disseminated to the patients. Special broadcasts by patient groups are arranged. Quiz contests, "man-of-the-street" interviews, dramatic sketches, solo and group musical features, and hobby programs are part of the entertainments provided. We wish to stress the attempt to introduce as much of the normal non-hospital environment as possible.

A beauty shoppe equipped with modern facilities has been installed. It has contributed considerably to the morale and interest of the female patients, and capable patients are also trained to act as assistants to the beautician.

An outdoor garden, with rustic furniture accessories, has been constructed on a naturally beautiful location along a brook. Under the supervision of the Occupational Therapy Department, patients interested in gardening have developed the "Brookside Gardens," which are used for relaxation, recreation, and small outdoor parties.

Dancing classes for those wishing to learn old and new techniques are provided. This is available to both sexes, and is given under the guidance of selected personnel.

The library for the patients has been organized to operate on the same principle as the public library. It is centrally located, available to all patients, and in the charge of a trained librarian. Reading rooms are used for reading of books and newspapers, or for study. Books are borrowed by patients as in public libraries. The librarian brings books to the medical center for those patients

under medical care. Once a week the librarian broadcasts a program over the hospital radio system, telling of current books and events. A special record is kept of reading interests of each patient.[4] The community has been stimulated to contribute a large number of books and magazines which are reconditioned at the hospital for ward use.

A hospital publication under the guidance of the Occupational Therapy Department has been developed. The attempt here is to create a paper, free from gossip, and made up chiefly of contributions from the patients themselves. Sport sketches, special features, fashion notes, and other items are contributed by the patients.

The salient points of this program of activities are these:

1) An atmosphere is created as nearly like the general community as possible. There is no logic in shutting off the patient from his normal environment. To do so serves only to emphasize the separation created by his illness, and further stressed by hospitalization with its atmosphere of "difference" or "queerness."

2) The impact of these diversified activities serve to stimulate the patient physically and mentally and to decrease the introspective self-awareness usual to the average hospital patient regardless of psychiatric category. That there are some in whom an increase in stimulation is not beneficial is of course true, but these form the minority and can be adequately controlled.

3) The departmental cooperation that is necessary in the efficient performance of these highly organized activities helps to create an atmosphere of morale in the personnel which is distinctly valuable. The personal satisfaction in their work promotes a greater interest in the welfare of the patients.

4) Contrary to general feeling, the facilities within the large state hospitals are adequate to enable the organization of an intensive, individualized therapy available to all patients. This is so, despite the low ratio of personnel to patients.

5) This approach must be regarded as not specifically recreational or purely of entertainment value. It is in a broad sense therapeutic and when considered so, has a greater significance and more important value.

6) A basic program is immediately available for special procedures and techniques. We have found this to be true in the case of the Total Push Therapy recently advocated by Myerson and Tillotson.[1] Our experiences with a small group under this type of therapy is in preparation.[5]

7) The relationships developed between the patient and the worker are an important factor in giving the patient a new outlook on his illness and thus aid in his recovery.*

What are the results?

Only impressions can be given since the large groups of patients are unselected, and the individual factors and criteria involved are so variable that precise ratings are not feasible. Nevertheless, we have noted that "deteriorated" patients often would respond and resume greater spontaneity. It has been observed that some destructive, excited, assaultive and homicidal patients respond very favorably. There has been a greater enjoyment of the various activities, a development of greater initiative by some patients, a discovery of certain special aptitudes and interests, a dimunition in the monotony of hospital routine, and in many instances an improvement in physical health. Employees have shown a greater interest and improved esprit de corps since they feel part of a definite therapeutic program.

It would be rash indeed to state that the improvement in mental health and ultimate discharge is directly attributable to this program. It cannot be gainsaid, however, that its effect on the patient is advantageous and beneficial.

Summary

An organized program of diversified activities for patients in a large state hospital is described. This may be considered an adaptation of the total push principle in the treatment of schizophrenia. By the use of facilities already present, or easily made available, highly individualized activities can be applied to the general population within the hospital. Specific mention is made of hospital radio broadcasting systems and cooperation of music director, physical education director, Occupational Therapy Department, librarian, and ward personnel in developing activities of interest and benefit to the patients. En-

*Further data in preparation.

couraging results have been noted in the mental condition of patients and upon the entire hospital atmosphere. The effect on the morale and interest of personnel is discussed.

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The Rorschach Experiment—X-Ray of Personality*

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Dr. Cameron was graduated from University of Nebraska in 1936. He served as Interne at the U. S. Marine Hospital, San Francisco, California, and was commissioned as an Assistant Surgeon in the Regular Corps of the U. S. Public Health Service in 1937 and as Past Assistant Surgeon in 1940. He is at present Executive Officer at the U. S. Public Health Hospital, Fort Worth, Texas. He is an Associate Member of the American Psychiatric Association.

The Rorschach experiment is performed by the use of a set of standard ink blot cards which the subject is asked to interpret. These standardized ink blots are in themselves insignificant, but can be used to good advantage. They are the representations of one of the most important developments in the field of medicine, let alone the field of psychiatry.

Ink blots were first used from a psychological point of view by Kerner in 1857. Since then many attempts have been made to perfect these tests but all were hampered by the idea that *what* one saw in these blots was most important, that is, whether it was a cat or a spook. In 1911 Dr. Herman Rorschach, a Swiss psychiatrist, began his experiments with ink blots and published his first paper, "Psychodiagnostic," in 1921. In this and subsequent works it has been shown that *why* a response is given is the important thing. Since then there has been a gradually increasing number of workers interested in this procedure and the original methods have been improved.

In this time of increasing awareness of the need to treat the patient as a whole instead of as an interesting stomach or some other organ, anything that will help us to know our patient as an individual is beneficial. Specialists in many fields often consider the personality of their patients in prescribing treatment. More often still the general practitioner needs to know about a patient's personality. You want to know if a man might malinger. This is especially true in industrial practice. In private practice we want to know which woman might be apt to develop hysterical manifestations or which man, when plagued by business or family reverses, might be a potential suicide. Is this patient a neurotic or are his symptoms the result of organic pathology? More important still if he is a neurotic, what aspects of his personality can you use to advantage in treating him? Every one of you treat patients daily who have some functional aspects in their illness. In a study of the clientele of the graduates of the University of Colorado Medical School from 1935 to 1937 it was learned that 7.5 per cent of their patients were purely psychiatric problems, 11.5 per cent were psychiatric problems with some incidental organic pathology and 20.5 per cent were organic disorders with psychotic complications, a total of 40 per cent of their clientele with psychiatric problems. They didn't refer all these cases and you don't, either. You treat most of them yourselves. Thus, in approximately 40 per cent of your cases at least you need a thorough knowledge of the individual personality.

Until the development of the Rorschach method there was no objective way of studying personality. We talked about it, discussed it, misunderstood it and gave opinions about

*Read before a meeting of the Texas Neurological Society held at the U. S. Public Health Service Hospital, Fort Worth, Texas, May 12, 1941.

it based on subjective observations. Now we can actually study it objectively as you would look at an x-ray of a broken arm. In all cases, concrete findings are not as evident as in an x-ray of a broken arm, but in most cases it is at least as helpful as the average x-ray. Like the x-ray or the E.K.G., the record is not enough in itself. Someone has to interpret the objective findings. The objectivity of the method is best shown by describing briefly its administration, scoring, and the empiric basis of interpretation.

The administration is divided into three parts. The first is the performance. In it the cards are presented to the subject in sequence and he is asked to tell what it might be. His responses are recorded verbatim. The second part is the inquiry, in which we find out what it was about the card that stimulated a certain response, for example, the color, the shape or the shading. The third phase of the experiment is called testing the limits. At this time we find out if the patient is capable of giving certain responses which the cards tend to stimulate, for example, is he able to combine the use of form and color to give a single answer?

After administering the experiment, responses are scored according to the position of the card, location of the stimulus on the card, the factors that determined the response such as form, color and shading, and the content of the card, such as animal, plant or human to name only a few. We all react to many stimuli daily. Studying personality in an every-day situation we deal with two unknown factors—the personality and the stimuli. In the Rorschach method only the personality is unknown since these ink blots, which are the stimuli, have been standardized and are always the same. Elaborate studies have been made in which so-called normal individuals have been subjected to the experiment as well as groups of people showing various mental illnesses. The individuals, both well and sick, used in the original experiments by Rorschach were well studied from a clinical standpoint. Only "normal" people whose various personality traits were well known were used. The records obtained were then compared and common characteristics were found in them that corresponded to the clinical groups.

It can be seen that the test was thus set up on an empirical, statistical study. At the same time investigations were carried out to learn the relationship between the clinical manifestations and the comparable findings in the records so that now we have some psychological foundation for the test in addition to empiric statistical studies.

Two points must be made clear: (1) The Rorschach method does not reveal a behavior picture, but it does show the underlying structure which makes behavior understandable; (2) The use of the method does not presuppose any particular concept of personality, i.e., analytical, organic, or psychobiological. On the contrary, conscientious use of the Rorschach method has a peculiar effect upon everybody's personality concepts and tends to point out what is sound.

Once administered and scored, what does the method reveal? It shows us (1) Basic personality configurations; (2) Intellectual aspects, and (3) Emotional aspects of an individual.

In studying the basic personality configurations we learn the type of control used by the individual. It may be primitive, and in such a crude individual there is a lack of capacity for refinement. It may be rigid, in which case the individual has the capacity for refinement but does not use it. It may be intuitive, in which case we usually have a mature individual of broad background. In others, control may be entirely conscious or intellectual. An insulting remark to one person may cause only a smile and an inward remark, that the perpetrator is lacking in self-control. It would probably never occur to such a person to avenge himself. That is intuitive control. If the same remark were directed toward some other person he might think to himself, "Why, that no good so and so, I ought to take a sock at him, but I won't. It might get us both in trouble." That is conscious or intellectual control. The behavior is the same in either case, neither man hit me but the second one had to use a lot of his energy to keep from doing so. If he has to watch himself all the time, control himself consciously, he has little time for anything else. The Rorschach may show no control at all in hypomanic states and in psychotic personality disintegration. We learn whether the patient is basically an extrovert, introvert or ambivert. You say that's easy to

tell. Some people force their behavior away from basic tendencies. A physician acquaintance of mine is a very quiet, unassuming, almost shy individual. One day in the company of some visiting doctors he suddenly brought a "burp" up from the soles of his feet and gave it full voice. His behavior was entirely out of order with his usual demeanor. A Rorschach revealed a marked basic extrovert forcing himself into a quiet, studious life. Then, too, it is always amusing to find that a man whom we all thought to be a marked extrovert, behaves in that manner because he is so engrossed in his own ideas that the feelings of those about him have no effect on him. Behavior alone is not the criterion to judge whether the person receives most of his stimuli from his environment or from within himself.

The intellectual aspects of the Rorschach reveal the individual's mental approach to problems. This is based on the choice of location, organization of form details and form accuracy in the responses. The pedantic man who always has to do things just so and is rigid, approaches the experiment in the same way. He proceeds methodically, looking for whole answers, large detail answers, small details and rare details in each card. He is inelastic in his method of approach to each card. The dissociated schizophrenia may show no semblance of order in the way he approaches the problem. We learn that emotions may tend to disturb the intellectual functioning. Common sense and originality are readily judged according to the number of common responses given and the number and quality of unusual answers. The relationship between the imaginative and rational functions may be learned. It is important to know whether a man is capable of using his imagination and, if so, whether he has enough rational and intellectual factors to keep it within reasonable bounds. Another man may be so utterly reasonable that he is unable to use whatever imaginative powers he has. A staid, rigid bookkeeper might refuse to put $50.00 in a sound investment because he once heard of a man who lost $500.00 by investing in oil stock. The intellectual capacity can be ascertained, and more important, you see how well a person is using his capacities. The man who had to keep his fists in his pockets to keep from hitting me might be very intelligent, but he is unable to use his intelligence constructively as long as he has to think about controlling his anger.

The emotional factor revealed by the Rorschach includes the emotional ties with one's inner life such as the attitude toward instinctual drives and anxieties. Neurotic and compulsive tendencies are often seen. It reveals the emotional ties with outer reality; that is, how well you accept stimuli from without—whether you are spontaneous in your reactions or afraid to be.

The diagnosis of personality and of psychotic and neurotic disturbances is not possible unless the interpreter is familiar with the personality patterns underlying given clinical pictures. This is no different than any other medical field. The internist would never diagnose pancreatitis unless he first thinks of it and knows the history, physical and laboratory findings. By the same token you can't diagnose a compulsive neurotic with the Rorschach unless you know something of compulsive neuroses. If you have this knewledge and master the technique of the method, you can learn more about your patient's personality in one hour than you would by knowing him rather intimately for one year. That alone justifies the use of the method.

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Some Influences of Catholic Education and Creed Upon Psychotic Reactions*

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Dr. Jahrreiss graduated from the University of Leipzig (Germany) in 1921. From 1922-1936 he studied and taught Psychiatry and Neurology at the University Clinics of Leipzig, Frankfurt, Munich and Cologne. In 1936 he was appointed Instructor in Psychiatry at Johns Hopkins University, and Psychiatrist at Mount Hope Retreat, Baltimore. At present he is Research Professor of Psychiatry at the Catholic University of America, Washington, D. C.

Mount Hope Retreat in Baltimore, Maryland, is a psychopathic hospital, owned and managed by the Daughters of Charity of St. Vincent de Paul. As might be expected, not less than 93 per cent of the 600 patients are Catholics, and of this group again, about 30 per cent are religious persons; that is, priests and seminarians, nuns and brothers. As regards one great cultural factor, then, the patients of this hospital are a homogeneous group. One may well expect to find that this common moulding influence has left some definite imprint on their personality and will even unmistakably mark their pathopsychological reactions.

I shall not be able to provide you with new facts or startling theories as did Max Weber,[1] the German sociologist, when he daringly declared that the rise of capitalism was due to a new ethic, the Protestant, especially Puritan ethic, which taught that striving for earthly goods and profit is morally sound and religiously justified, in contrast to the Catholic tenet of poverty. In line with this, there are some observations which I think worthwhile to be mentioned and discussed.

For more than twelve years I had seen psychiatric patients of all kinds, rich and poor, educated and illiterate, city-folk and peasants, in two great German cities—Munich and Cologne—the population of both being predominantly Catholic. And yet, I cannot remember that one patient had asked me: "Doctor, are you Catholic?" Since I came to Mount Hope Retreat in Baltimore, I was asked that question frequently. Why did this question arise in a country noted for religious freedom? There are many reasons for this anomaly. An explanation, which one patient gave, is the following: "If you are not a Catholic, then you cannot understand my difficulties, my tribulations and distress."

While I was writing the history of Mount Hope Retreat, I came across the following delightful story in the diary of a Sister of the hospital, written about eighty years ago:[2]

"An elderly man, suffering from a depressive condition, had told us," the Sister states, "that he was a Catholic, but on inquiring we found that he had not approached the Sacraments for seven years. 'Then it is no wonder,' said the inquiring Sister, 'that you cannot be cured; for in some cases the peace of the soul is absolutely necessary for the welfare of the body.' This had already been our opinion from the fruitless efforts of the doctor, but, as the doctor was a Protestant, we could not tell him our sentiment. The patient soon recovered."

There you have the explanation in a nutshell. The conviction that only the initiated ones can understand each other, reveals the fact that this spirit of an isolated common ground is alert, and that its source, the Catholic Faith, is something alive and real.

A second observation that struck me as definitely different from my previous experience with Catholic patients in Germany, points apparently to the same phenomenon—nearness and effectiveness of our patients' religious belief.

Thus far, I have not spoken generally about possible influences of the Catholic creed. My observations, provided they are correct, indicate only that in Germany, Catholic education is less effective in coloring and shaping certain attitude and reactions, than in the selected patients of a Catholic hospital in this country. *G. Aschaffenburg,*[3] in his book on crime and its prevention, mentions that in Germany the suicide rate is lower in Catholics than in Protestants and that Ireland has the lowest rate of all European countries. Ireland is largely Catholic, but another predominantly Catholic country, France, has the highest suicide rate. Many Catholics in Germany and in the United States have assured me that a great number of the French people are Cath-

*Read before the Staff of the Henry Phipps Clinic, the Johns Hopkins Hospital, Baltimore, Maryland.

olics only in name, but their faith is lacking in strength and conviction. This opinion in turn is based, at least partially, on observations like the difference in the number of suicides. Is it then justifiable to say that Catholics shrink from committing suicide? Probably not, unless one confines this statement to those Catholics who faithfully adhere to the teachings of the church. Perhaps, then, what I now have to say about some observations on depressive patients at Mount Hope Retreat points to the underlying factor that they are of the actually faithful type. That they are the rule rather than the exception in this country could possibly be concluded from the statement of a Catholic author, George N. Shuster.[4] He writes in The American Scholar: "The Clergy resembles the people whence it springs. It is surprisingly humble, hardworking and highminded. It is perhaps the most Orthodox priesthood in the world," and he continues, that "in the domains of the practice of religion, sex, morality and education the priest exerts great influence."

Almost without exception the thoughts of our depressed patients, of the manic-depressive group, center upon religion. They complain that they have lost their faith; that they are beyond redemption; that God has turned His face from them; that they will go to hell; that Mass and the Holy Sacrament do not mean a thing to them; that they cannot even pray any more. Certainly these depressive ideas are not uncommon in the long list of so-called melancholic delusions, and they are enumerated in all psychiatric manuals. But, never before have I encountered them with such regularity as the primary topic.

William James,[5] in the Clifford Lecture on the "Varieties of Religious Experience," devotes two lectures (VI and VII) to the depressive mood as a fertile ground for the development of religious thoughts and concepts. Surprisingly, however, he emphasizes that in the United States the religion of healthy-mindedness, of an optimistic attitude at all cost towards life and of deliberately minimizing evil, has made great progress. He also states that "the Catholic practice of confession and absolution is in one of its aspects little more than a systematic method of keeping healthy-mindedness on top;" because it is a means of getting away from sin instead of groaning and writhing over its commission. One should expect that this general optimistic attitude and this specific practice of keeping people away from undue worries would make them safe at least from religious topics in their depressive conditions. But, in our cases just the opposite seems to be true. And yet, one may conclude quite ingeniously that exactly this kind of reaction is to be expected. Since nobody's life and existence can remain without moral failures and defeats, called sins in Christian terminology, why then, if we break down, should we not groan and writhe and repent all the more vehemently, since we had minimized these sins before in deliberate optimism?

Looking upon our simple facts, I think that all one could possibly deduce from them is that for our patients the belief in the existence of God and the need of communication with Him is genuine; that the belief in life after death with the threatening terror of hell and the devil are not mere theological concepts, but living and convincing realities.

I have not found one case in which I could truly say that out of the depression sprang, what *William James* calls "acute religion," a fervent and creative religious belief. There is only one patient, who during a brief ecstasy following a period of depression and despair, had a pseudo-conversion when he found himself caught in an insoluble dilemma. He was divorced from his first wife and wanted to leave his second. He longed to come home to his mother and to the innocence of his childhood days; and to be received back into his church from which he had excommunicated himself. None of these ardent wishes could be fulfilled without great sacrifice. He grew bitter towards the church, dreamed of going on a one-man mission, preaching and writing that the true way to God is in our heart, and does not rest exclusively with the Holy Catholic Church. Finally, at Christmas time on a visit to his second wife's relatives, in the country, he threw off his apathetic brooding and dullness, and ran out into the woods, took off his clothes and cast away even his false teeth, in order to get rid of everything false in him and on him. Soon this ecstasy of purification and this prophet-like exhibition collapsed. The patient was found by his relatives, mute, gloomy and burnt out.

Another case is that of the middle-aged single woman, who came to Mount Hope Retreat during her fourth depressive phase. After the first one, in her twenties, patient who had been a Protestant, became a Catholic convert. What makes her case particularly interesting is the way in which she managed to trick herself out of a religious conflict, when each of the following three depressions began to abate. She felt that she was beyond redemption and that hell was awaiting her. In the first of these depressions she was treated by a physician, who was an atheist according to patient's statement, and he succeeded in making her believe there is no hell. During the second depression, she began to doubt the actual existence of hell, and, when the crucifying zeal of the last depression began to weaken, she was able to comfort herself with the thought that nobody is judged before his end, and that there was still time for her to start a clean page again. This time, at last, she had become pious, as well as wise enough not to doubt the existence of hell or to argue it away completely, but to postpone the decision and to trust again in herself and in God. She was an educated woman and well able to describe how she felt God's nearness again and how she, who had been shut off from communication with God by numbness and despair, was able to enter anew the hallowed circle of positive transcendental experience.

This story brings to mind the depression *Nicolaevich Tolstoi,* the Russian novelist and reformer, went through, and certainly I do not have to state explicitly that this type of religiously colored melancholia and the final triumph is not a specifically Catholic experience. Tolstoi relates how the idea of God, the "thirst for God, the craving for God," that had "nothing to do with the movements of his ideas" led to his recovery from the depth of a long lasting depression.

One might expect to find that a religious person, who in a depression is staring at hell would turn his thought towards heaven, when he found himself in the elated mood of a manic condition. But this is not so. The manic flightiness prevents him from dwelling upon one aspect even were it Paradise. His euphoria is the expression of a dynamic change so vitalizing him, that death is his remotest thought. However, one of my patients, who had suffered from several mild depressive phases, suddenly became manic. During this elated state, her thinking was centered upon the one certainty—that she was going to die, within an hour, on the following day, on the next feast day and so on—always postponing the date of happy departure. This condition was not only based on a vague feeling of supreme content and radiant happiness, but also on the reasoning, that it was an unmistakable sign of impending death to be so entirely free of unpleasant sensations; and furthermore, she argued that God would take her straight to heaven, since her many depressions had already been purgatory enough.

Thus far I have dealt with possible pathoplastic influences the Catholic creed may have upon the mental disorders of a rather selected group, namely, that of middle class Americans of predominantly Irish descent which largely constitute the population of our private mental hospital. Now, I want to focus the interest upon a group within this group, namely upon those of our patients who as priests or nuns received additional religious training, and who live under the rules and restrictions of community life. The inner justification of such an existence is based on the "call" to it. Whatever the religious portent of this call may be, its psychological significance is that a person does feel the urge of giving himself up in order to serve the highest ideal he can perceive. Unfortunately for this study, information about the nature, the inner and outer circumstances of this call, was only rarely obtained and then in general and evasive terms. However, the following case of a schizophrenic may illustrate how an eager, idealistic and somewhat fanatic man received the call; and how the slowly developing psychosis over-emphasized in a caricaturing manner some of his personality traits, while all the time the religious training through which he went, furnished the material for his thoughts. He had been to a Jesuit College and had left it for a brief time, entering a Seminary to study for the priesthood. A few months later he left the Seminary, returned to the college and graduated. He was bright, very sensitive, serious, tense, little sociable and without the harmonizing gift of a good-natured and ready humor. For three years he was groping for

the ultimate goal of his life. He said later that he always wanted to be a leader, to impress his ideals and ideas upon others. He would go so far as to say that, were he not raised a Catholic, he might have become a Communist, and of course a leader. But he had received the "call," and the fact that he once had left the Seminary only meant that he longed for a higher ideal than he found expressed in the existence of a secular priest. He entered a religious community. About three years later it became increasingly difficult for him to study. He "discovered" that the community was not the ideal order he had expected to find. He endeavored to reach perfection for himself by carrying out most strictly the rules and regulations; he clung to the letter as he failed increasingly to grasp the spirit. His mind was swept by dreams of an exalted position he was going to occupy in his community, and he began to identify himself with its founder, and finally proclaimed that he was commissioned by God to save the world.

Disillusionment, growing maladjustment, bitterness and paranoid pseudomastery of an unbearable inner situation is not an uncommon reaction with members of religious orders. *Thomas V. Moore*[6] found that "paranoia is significantly higher among nuns than in women of the general population," and he is of the opinion that this "might well be due to the fact that a certain number of potential paranoias are attracted by what they think the religious life is going to be." When these paranoia candidates who once started to walk the road of humiliation resort to callous self-deception and stubborn triumph, they never cease being the scourge of their community. We have seen quite a number of those querulous paranoias to whom the different communities react in almost identical fashion. They are sent from one mission to another, through all the houses of the community, until finally, after many years, a physician is consulted. Then the Sister is sent to a general hospital, which calls the psychiatrist into action, who in turn commits this Sister to a mental hospital. A definite solution, beneficial to patient and religious order alike, is almost impossible. Those paranoiacs cannot be put out of the community, and even if they should wish to leave the Order, there is always the question whether they are mentally sound enough to decide for themselves. As a rule they want to stay, and are afraid to face the world outside with which they have lost contact for so many years, and to which they are not better adjusted than to the community. Almost without exception these querulous nuns lack the real religious spirit; they even neglect the daily religious exercises. *William James*[5] occasionally mentions the fact that the querulous temper keeps a person's mind from taking a religious direction. "Querulousness of mind," he states, "tends rather towards irreligion, and it has played, so far as I know, no part whatever in the construction of religious systems."

We have observed a similar lack of religious spirit very often in those priests who drink excessively. *Thomas V. Moore*[6] found the percentage of alcoholics in the list of mental disorders in priests unexpectedly high—20.74 per cent as compared with 7.3 per cent for males of the general population. It is difficult to understand how religious training or even the strain of a priestly life should bear such fruit. The percentage of alcoholics in religious priests, those who are members of a religious order, is definitely lower for instance than in the secular clergy—11.11 per cent as compared with 20.95 per cent. This high number of alcoholic priests in mental hospitals is more likely due to the specific reaction of their environment and their Bishops. Drinking priests very soon make themselves conspicuous and the Bishops can send the relatively mild drinkers to hospitals and see to it that they remain there much longer than alcoholics of the general population will stay or can be detained.

I want to close with some more statistical data on insanity in priests and religious persons given in a study by *Thomas V. Moore*.[6] In 1935, there were in the United States 30,250 priests, 122,220 Sisters and 7,408 Brothers. Their total incidence of insanity was lower than in the general population. Of the different groups (priests, nuns, etc.), the highest rate of psychotics was found in the cloistered nuns, being almost twice as high as in the general population. The lowest rate was found in religious priests. The syphilitic types of mental disorders were absent. There is an excess of dementia praecox cases among Sisters that cannot be accounted for by chance. On the

other hand, the number of manic-depressives is not higher than would be expected. Thus, it does not seem that the strain of community life causes increased insanity among nuns. The excess of schizophrenics might be explained by the tendency of pre-psychotic personalities to seek admission to the religious life.

These statistical findings are valuable signposts, and they already call for a remedy of the evils they seem to reveal. But the many possible influences, wholesome and harmful ones, are so entwined in the life of priests and nuns that real insight into the actions and counteractions of these factors cannot be gained by statistics alone. Community life is a strain as well as a shelter, and those who enter it are a twice selected group. They chose this way of existence according to quite different circumstances and motives, and following their inner preparedness, the "call;" but they are chosen, too, after careful observation by their superiors.

The Catholic creed and education do not produce any specific pathergasic reaction-type, but it may color well known psychotic states to some degree.

It seems that religious faith in itself has the power to endow the true believer with great strength and with the gift of an almost perfect integration. It enables the faithful to adjust himself to the world, and to adjust the world to his religious conception. Thus, he may be relatively safe from disintegration that leads to mental disturbance; and, should this befall him, he may well be capable of keeping it under control. But there is no simple relation between religious faith and mental disorder, neither in the sense of preventing nor of precipitating the latter, just as some faithful in a psychosis will turn against church and God; while some agnostics, suffering from a new, crushing and triumphant experience in a psychosis might be led to a fervent and creative religious belief.

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4 Shuster, N.: The American Scholar, Vol. 10, No. 1.
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Newsnotes

THE SALMON LECTURES

The Salmon Committee on Psychiatry and Mental Hygiene of the New York Academy of Medicine has named Dr. Emilio Mira, professor of psychiatry at the University of Buenos Aires, Argentina, and formerly full professor of psychiatry at the University of Barcelona, Spain, as the Salmon lecturer for 1942.

The lectures will be held on three consecutive Friday evenings, November 6, November 13 and November 20, in the New York Academy of Medicine Building, 2 East 103rd Street, New York City. Members of the medical profession and their friends are invited to attend.

The Salmon Committee each year selects an outstanding specialist in psychiatry, neurology or mental hygiene to deliver the series of lectures. Selection for the Salmon lectureship is made from among the leading psychiatrists and neurologists throughout the world who have made the greatest contribution to their particular field of science during the preceding year and is likened to receiving the Pulitzer Prize in letters.

Dr. Mira, who was director of the Neuro-Psychiatric Services of the Loyalist Forces during the Spanish Civil War from 1936 to 1939 and has studied and taught in Germany, France, Switzerland and England, has entitled his lectures "Psychiatry at War." In his first lecture on November 6 he will discuss the psychopathology of fear and anger reactions in wartime. In his second lecture on November 13 he will discuss the duties of the psychiatrist in wartime and his personal experiences in the Spanish War. In his third lecture on November 20 he will lecture on new techniques for detecting and controlling "fighting power" in individuals and armies.